Mesanthophora, a New Genus of Vernonieae (Asteraceae) from Paraguay

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ABSTRACT. The new genus *Mesanthophora* is from a limestone area of central Paraguay. It looks similar to *Lepidaploa*, but has decurrent auriculate-based leaves, pedunculate heads from the middle of internodes, nearly equal numbers of involucral bracts and florets, and triporate, totally lophate, strongly columellate pollen lacking a perforated tectum.

A Paraguayan specimen belonging to the Asteraceous tribe Vernonieae that was sent by the Missouri Botanical Garden for identification has proven to represent a distinctive, previously undescribed genus. A superficial resemblance to *Lepidaploa* proves misleading. Both the genus and the species seem undescribed in spite of the many members of the Vernonieae that have previously been described from Paraguay by such authors as Chodat (1901–1902).

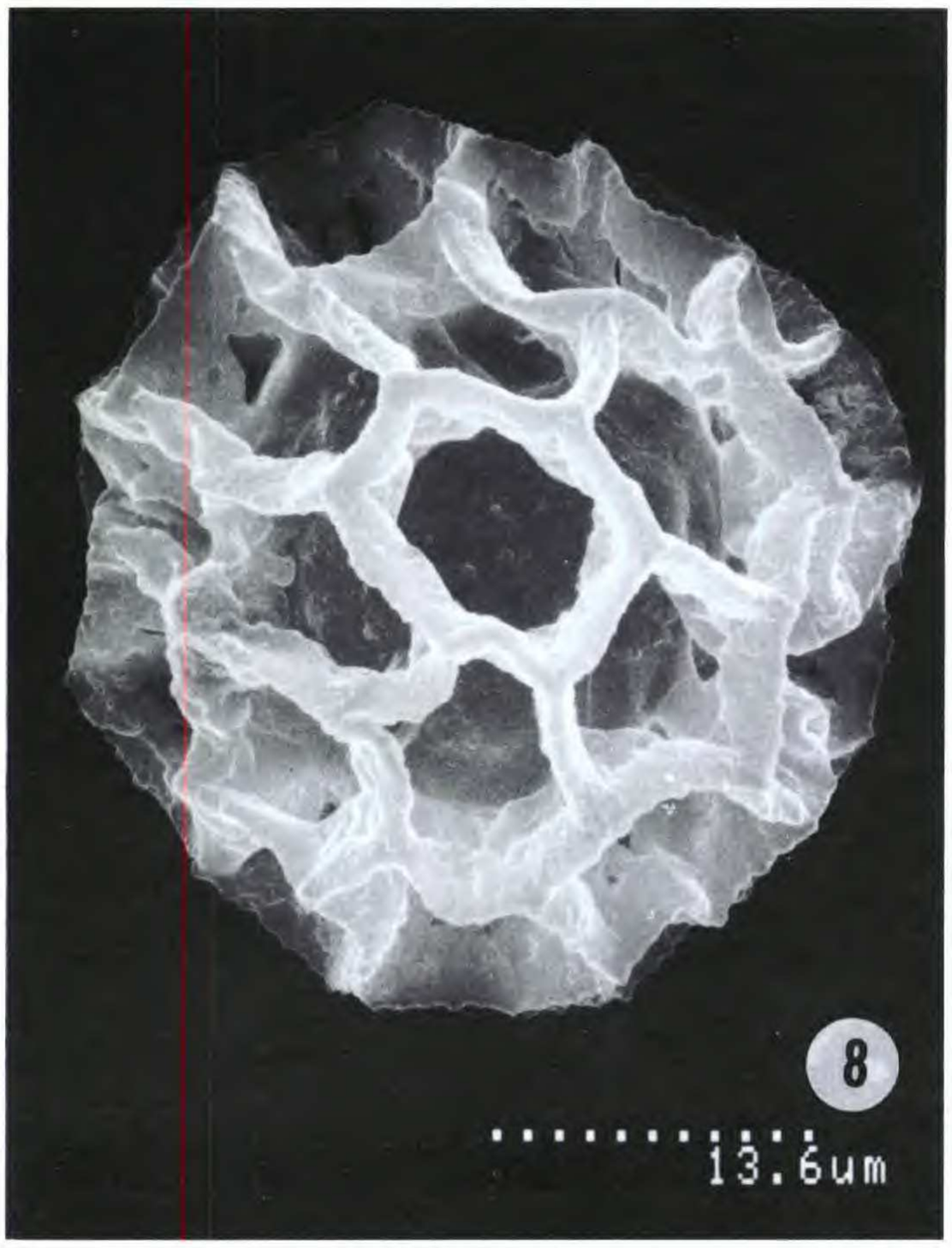
The type specimen of the new genus has a general habit of the common neotropical Vernonian genus *Lepidaploa* (Cass.) Cass. (Robinson, 1990), with series of heads among large foliose bracts along the branches of the inflorescence. However, initial observation shows that each head is pedunculate, unlike the heads of *Lepidaploa*. The new genus also differs by the position of the pedunculate heads on the middle of the internodes rather than at the nodes. The supra-axillary position seems rigorously maintained throughout the inflorescence and is a characteristic that distinguishes the plant from all other Vernonieae. In a final distinction, the leaf bases are sessile, decurrent for up to 5 mm, and are auriculate below the decurrency. The decurrency holds the basal auricles of the leaf at a downward angle compared to the rest of the leaf blade. *Lepidaploa* does not have sessile auriculate leaf bases. Other South American Vernonieae with sessile, markedly auriculate leaf bases, such as *Vernonia auriculata* Griseb., *V. jubifera* Rusby, and *V. prenanthoides* Gleason, all of Bolivia, have no decurrency, have more densely pyramidal inflorescences without large foliiform bracts, and have smaller heads bearing type A pollen (Jones, 1979).

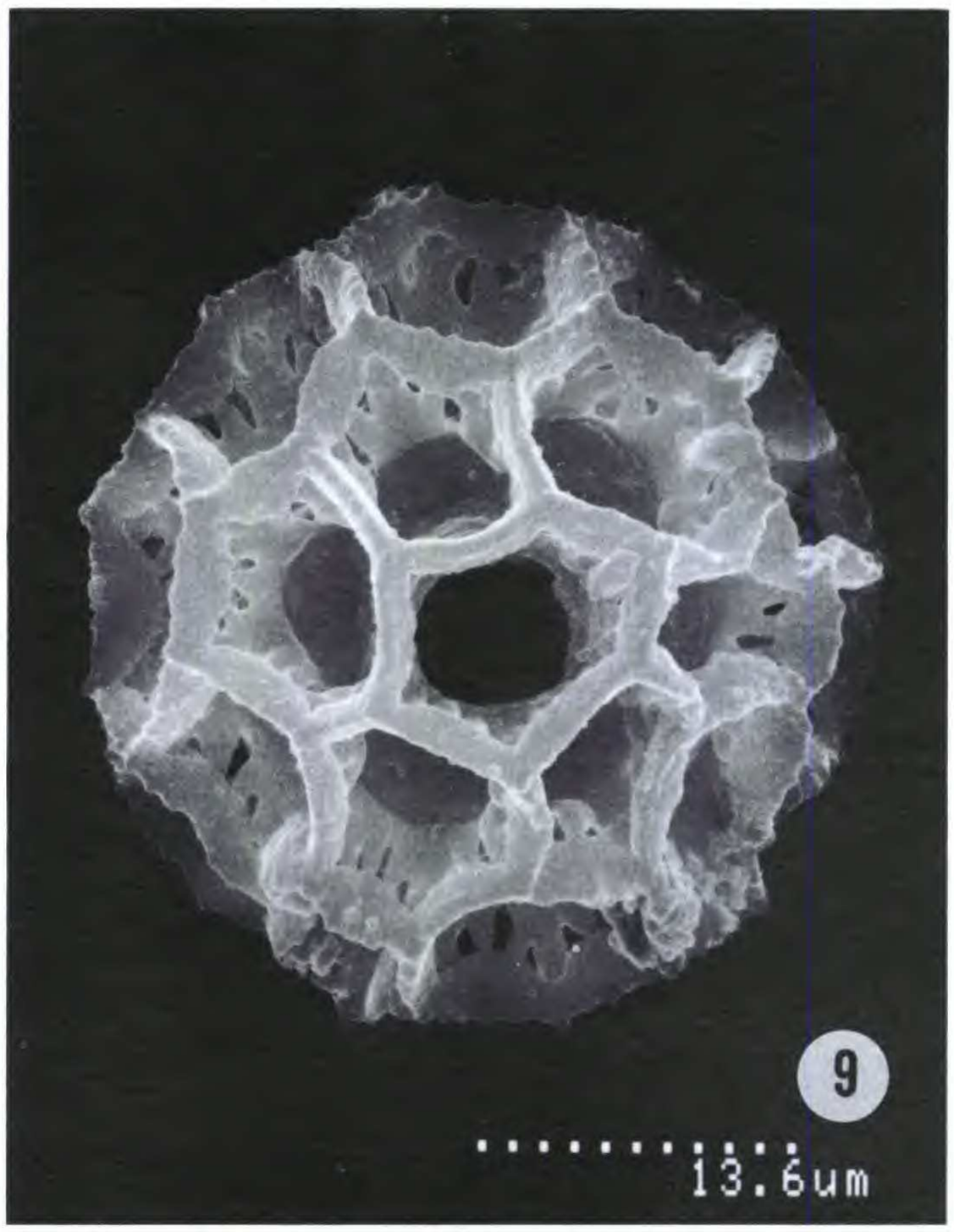
In the reproductive parts of the plant, other than pollen, it is the nature of involucral bracts that most sets the new genus apart from *Lepidaploa* and its relatives. *Mesanthophora* has nearly equal numbers of bracts and florets of the heads, which is similar to the *Vernonia* of the eastern United States. *Lepidaploa* and its close relative *Lessingianthus* H. Robinson have one and a half to three times as many bracts as florets in a head. The only examples among the *Lepidaploa* relatives that have fewer bracts than florets are some species of *Chrysolaena* H. Robinson, which have reduced numbers of both bracts and florets. The involucre of the new genus differs from those of most *Lepidaploa* because it lacks strong structural differentiation between inner and outer bracts.

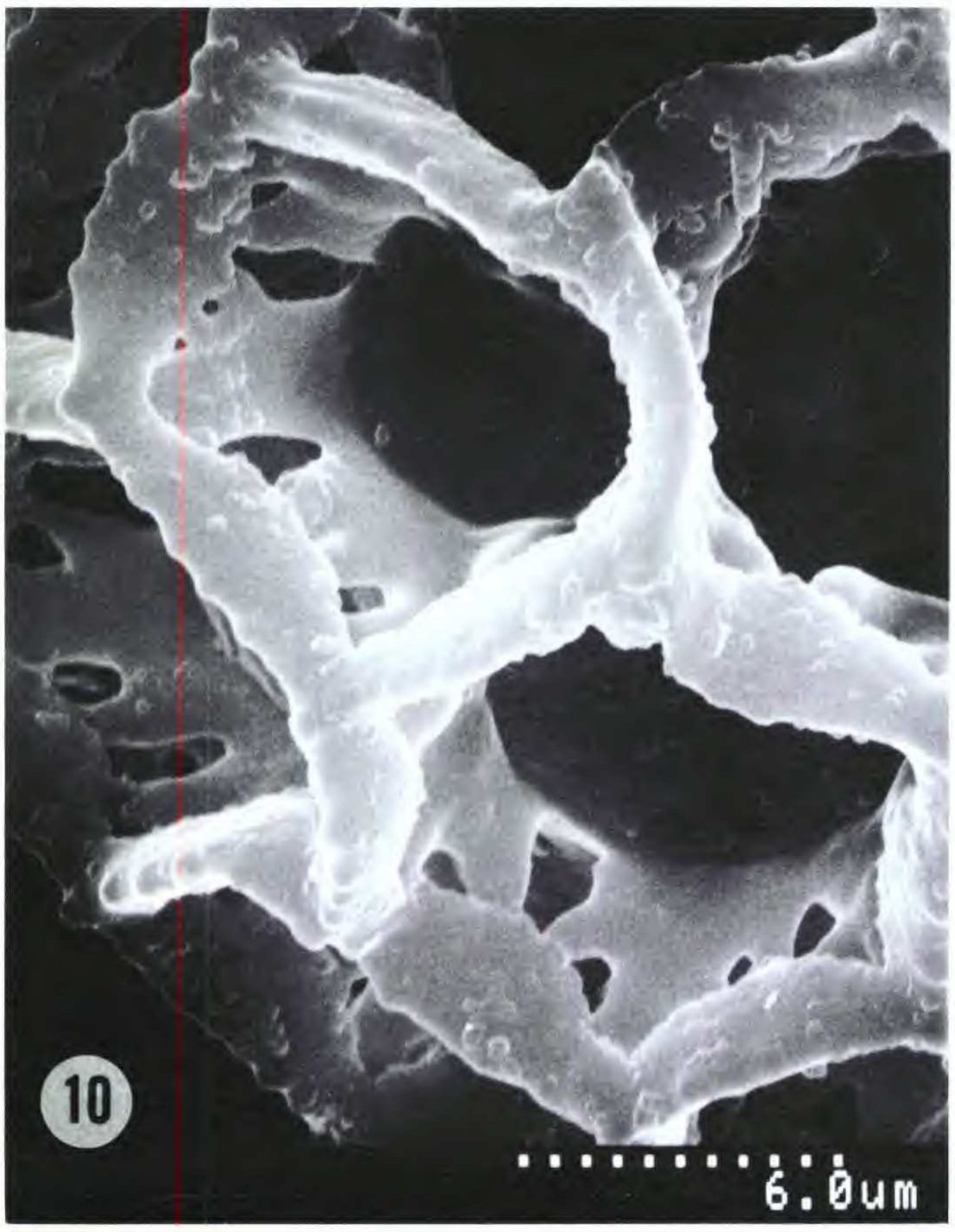
The pollen of the new genus shares a lophate condition with *Lepidaploa* and its relatives, but the detailed form is totally different. The pollen lacks evident colpi and has numerous, rather uniform areoles covering the poles and sides equally. The areolation of the grains does not seem rigorously consistent in form; generally, an areole seems to be centered at each pole, surrounded by six subpolar areoles. The areoles containing the pores are sometimes directly below an areole of the subpolar series and sometimes below a wall between two subpolar areoles. Lateral areoles between the pores always seem staggered. Basal columellae are concentrated toward the junctures of the muri of the exine and often seem to radiate from the curved lower edge of the crests of the muri. The muri lack a perforated tectum of the type found in *Lepidaploa* and its relatives, and the grains lack the spines and continuous perforated tectum of the type A pollen found in *Vernonia* and many other members of the tribe.

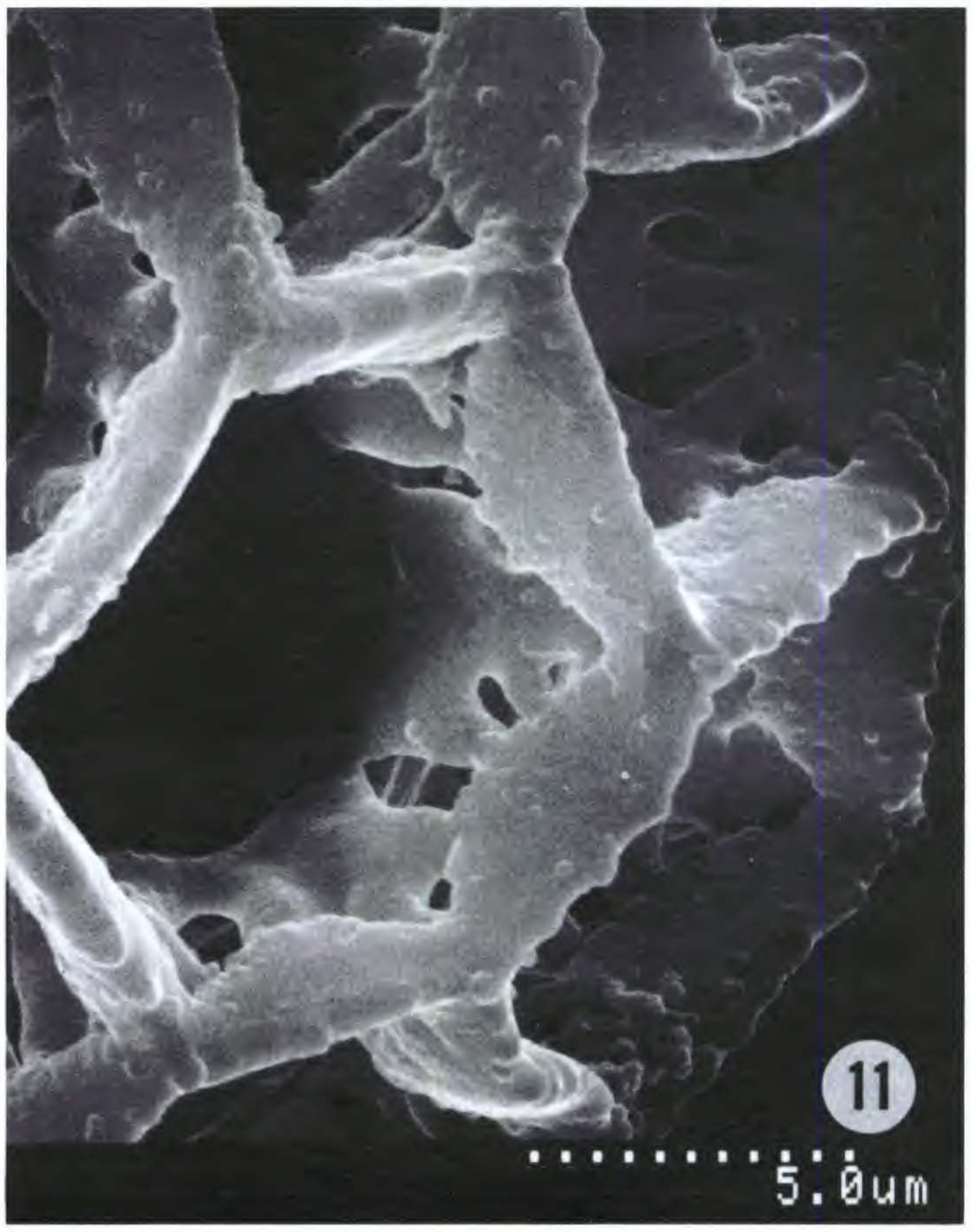
The general pollen form with many polar areoles and no evident colpi is rare among neotropical Vernonieae, but is more common in the Paleotropics. In South America only *Acilepidopsis* H. Robinson has been found to have precisely the same type of pollen with columellae concentrated near the junctures; a relationship to paleotropical Vernonieae has been suggested for that genus (Robinson, 1989). The inflorescence of *Acilepidopsis* has sessile heads

Figures 1–7. *Mesanthophora brunneri* H. Robinson. —1. Top of plant with inflorescence. —2. Head. —3. Corolla showing tips of style and anthers. —4. Style showing basal node. —5, 6. Young achenes with part or all of inner pappus attached. —7. Older achene with inner pappus lacking.









Figures 8–11. *Mesanthophora* pollen. —8. Polar view. —9. Lateral view with pore. —10, 11. Details of exine with lintels of crests broadened in middle and columellae concentrated at corners of areoles.

containing only ca. 30 oblong, short-tipped involucral bracts and 8–13 florets, and the heads are not positioned in the middle of the internodes. As in the case of *Acilepidopsis*, the chemistry and chromosome number of the new genus, which might indicate hemispheric relationships, are not known. The neotropical aquatic *Pacourina* Aubl., which is outside of the traditional generic concept of *Vernonia* with

its large achenes and short pappus, has pollen similar to that of *Mesanthophora* and *Acilepidopsis*, and, in spite of the great difference in appearance, it could be a comparatively close relative.

The new genus is named *Mesanthophora* in reference to the position of the heads in the inflorescence at the middle of the internodes. The species is named for the collector, David R. Brunner.

Mesanthophora brunneri H. Robinson, gen. et sp. nov. TYPE: Paraguay. Concepción: Arroyo Tagatiya-mí, 22°37′S, 57°32′W, 140 m, 4 abr. 1986, *David R. Brunner 1720* (holotype, US; isotypes, MO, PY). Figures 1–11.

A *Lepidaploa foliis* base decurrentibus et auriculatis, capitulis ex mediis internodiorum pedunculatis, bracteis involucralibus et floribus ca. 100 in quoque capitulo, et granis pollinis triporatis isodiametrice multiareolatis in partibus polaribus et lateralibus tecto imperforato distincta.

Perennial herbs to 80 cm high. Stems slender, smooth, glabrous, nonfistulose. Leaves alternate, sessile, oblong-ovate, mostly 1.5–7.5 cm long, 1.0–3.2 cm wide, upper leaves smaller, base of blade bending downward and distinctly decurrent, expanded outward into broad auricles, margins subdenticulate, apex shortly acute and apiculate, surfaces glabrous, glandular-punctate below. Inflorescence narrowly thyrsoid-paniculate, with seriately cymose apex and branches, lower heads maturing first; peduncles arising from middle of internodes without closely subtending bract, 4–10 mm long, glabrous. Heads broadly campanulate; involucral bracts ca. 100, graduated in ca. 5 series, linearly lanceolate, 3–6 mm long, base to 1 mm wide, apex narrowly acute, outside glabrous. Florets 90–100; corollas bluish lavender, ca. 6.5 mm long, tube narrowly funnelform, ca. 3.5 mm long, throat ca. 1 mm long, lobes narrowly oblong, ca. 2 mm long, ca. 0.4 mm wide, with glandular dots outside more dense distally; anther thecae ca. 1.5 mm long; apical appendages oblong-ovate, ca. 0.2 mm long, glabrous, with thin-walled cells; style base with distinct narrow node. Achenes ca. 2 mm long, 8–10-costate, with many short, subappressed setulae most persistent between costae; pappus bristles white, ca. 25, ca. 3 mm long, fragile, narrowed at base, not broadened at apex, squamae of outer series ca. 2 mm long. Pollen grains ca. 55 μm diam., triporate, lophate, with numerous subisodiametric areoles in polar and lateral parts, without perforated tectum, columellae broadly attached to base, concentrated at junctures of muri, lintels of muri broadened in middle with convex lower margins.

Additional label data is, "Bosque ribereño de 20–35 m de altura cambiando a savanas y campos fuera del arroyo. Suelo calcareo de poco profundidad sobre pedra caliza." The description of the type locality is interpreted as a wooded streamside over limestone in a savanna and campo area. The collection area is on the southern edge of a large limestone and dolomite region extending northward into adjacent westernmost Mato Grosso do Sul in Brazil. The latter is an area of low hills in the Pantanal adjacent to seasonally flooded lowlands. Additional collections of the new genus and many other distinctive plants should be found in the area.

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